# Micro Case 30: PID due to Chlamydia Trachomatis

1. Presentation

* 27YO woman with lower abdominal pain, vaginal discharge & dysuria for 1 week. Fevers and chills over the past 2 days. She had 4 sexual partners over the past year and used condoms occasionally. Was never treated for an STD.

1. Source of infectious organism: PID due to Chlamydia Trachomonas

* Obligate intracellular bacteria
* Energy dependent on host epithelial cells
* Gram negative
* Genus specific LPS is the common antigen
* C. trachomonas serotypes D-K are the world’s most common STDs

1. Manner of exposure, route of infection, tissues that they reside and transmission to others:

* Sexual contact
* Vertical transmission can cause neonatal conjunctivitis & pneumonia
* Causes 10% of community acquired pneumonia & 5% of bronchitis & sinusitis

1. Pathology:

* Infection beings with little abrasions during sex on the mucosal surface where the elementary body attaches & stimulates uptake into host.
* EB target receptors on the columnar epithelial cells enter the cells of the cervix
* Internalized EB remain in a vacuole and a cytoplasmic inclusion can be seen with a Giemsa stain or fluorescene antibody stained smear
* The EB differentiates into a reticulate body & these multiply by binary fission
* After 8-12 rounds of multiplication they reorganize to EBs & multiplication stops
* At 30-84 hours postinfection, many EBs are released & can initiate another cycle of infection
* Primary genital lesions occur when columnar epithelial cells are destroyed during the acute disease releasing proinflammatory cytokines which recruit neutophils & monocytes.. First acute (neutrophils) then chronic (macrophages & lymphocytes) come and an ineffective immune response is mounted.
* -interferon may induce a persistent disease state, with the altered RB growing more slowly. Tissue necrosis occurs & mononuclear cells aggregate.
* Ascending extention of chlamydiae from the endocervix to the endometrium & endosalpinx is dependent on many endogenous or exogenous factors. Arriving at the upper reproductive tract, C. trachomonas infect the columnar epithelial cells of the fallopian tube but produce little damage by direct effect.
* Symptoms of PID are due to the progressively chronic inflammatory disorder, resulting in damage to the uterus, fallopian tubes, and adjacent pelvic structures.

1. Diagnosis:

* Diagnosis of PID was made on positive culture results. Culture of endometrial aspiration under anaerobic conditions also grew 3 different anaerobic species.
* Chlamydia are obligate intracellular parasites & will NOT grow on media.
* Isolating them in tissue culture is the most specific method (human epithelial cell lines)
* Direct Immunofluoresence staining (IFA)
* ELISA
* PCR tests—becoming the norm!!!
* If all else fails, it can be detected in endometrial biopsy

1. Epidemiology:

* One of the causative agents of PID
* Most common STD in US
* Asymptomatic carrier rate of 25% predominantly associated with men
* Risk factors for PID include young age at first intercourse, multiple sex partners, IUDs, insertion, & tobacco smoking

1. Differential diagnosis:

* Actinomyces Israeli- often associated with IUDs
* Enteric gram negative rods- E coli
* Gardnerella vainalis
* Mycoplasma hominis
* Neisseria gonorrhoeae
* Polymicrobic infection
* Streptococcus agalactiae

\*\*Clinical diagnosis of PID should be considered

8. Prevention:

* Treat STDs to avoid getting PID
* Abstain from sex or be in a long term w/non STD person

Treatment:

* Doxycicline= DOC for chlamydia
* Use Azithromycin for noncompliant patients
* Treatment of PID- Use Cefoxitin (to cover organisms from lower bowel & anaerobes) + the Doxy for the chlamydia